International Journal of Business and Applied Economics (IJBAE)
Vol. 4, No. 3, 2025: 1091-1110

Comparative Analysis of Financial Performance Before and After Digital Technology Adoption in the Transportation Industry: A Case Study of PT Blue Bird Tbk

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A R T I C L E I N F O

Keywords: Financial Statements, Digitalitation, Profitability Ratio, Solvency Ratio

Received : 4, April
Revised : 21, April
Accepted: 23, May

A B S T R A C T

This study aims to analyse the differences in the financial performance of PT Blue Bird Tbk before and after the adoption of digital technology. The research employs a comparative quantitative approach using secondary data from the company's financial statements during the periods 2012–2016 (before digitalization) and 2017–2019 as well as 2022–2023 (after digitalization). The financial performance is measured using the ratios of ROA, ROE, NPM, DAR, and DER. Data were analysed using the Paired Sample T-Test. The results show significant differences in the ROA, NPM, and DAR ratios. However, no significant differences were found in the ROE and DER ratios. These findings indicate that digitalization has positively impacted the company's efficiency, financial structure, and long-term competitiveness.

DOI: https://doi.org/10.55927/ijbae.v4i3.113
ISSN-E: 2963-6124
https://nblformosapublisher.org/index.php/ijbae

INTRODUCTION

The transportation industry in Indonesia currently plays a vital role in the national economy, serving as the backbone of both public mobility and economic activity (Dewi et al., 2023). It helps drive the wheels of the economy by accelerating trade processes between regions, improving market access, and encouraging the growth of other sectors such as tourism and manufacturing. Challenges such as traffic congestion in major cities and uneven infrastructure in remote areas have pushed the government to continuously invest in the modernization and expansion of transportation networks.

The development of data innovation or information technology (IT) has progressed in line with human civilization (Laksono, 2021). In the era of Society 5.0, the field of technology has had a significant impact on human life, with most human activities now focused on technology-based processes (Aryasatya & Wibawa, 2022). The integration of digital technology not only increases efficiency but also helps the transportation industry become more responsive to market needs.

Ride-hailing applications are one form of digital technology innovation implemented by business actors in the online transportation sector. Online transportation is considered more efficient in terms of saving time, ensuring safety, being practical, and offering fare certainty (Suharto, 2021). Users simply need to order a vehicle through a smartphone by entering their pickup and destination locations, after which they can travel comfortably.

Digital technology innovations such as ride-hailing applications have had a significant impact on the transportation industry, particularly on conventional service providers that previously relied on phone or in-person bookings. Increasing competition due to the emergence of Uber, Grab, and Gojek forced companies like PT Express Transindo Utama Tbk to suffer major financial losses—reaching up to IDR 210.4 billion in 2017—and to lay off hundreds of employees. On the other hand, the pressure brought by digitalization also affected the labor sector, where many drivers and employees of conventional transportation companies lost their jobs due to declining operations and the growing public preference for more practical and affordable online transportation services.

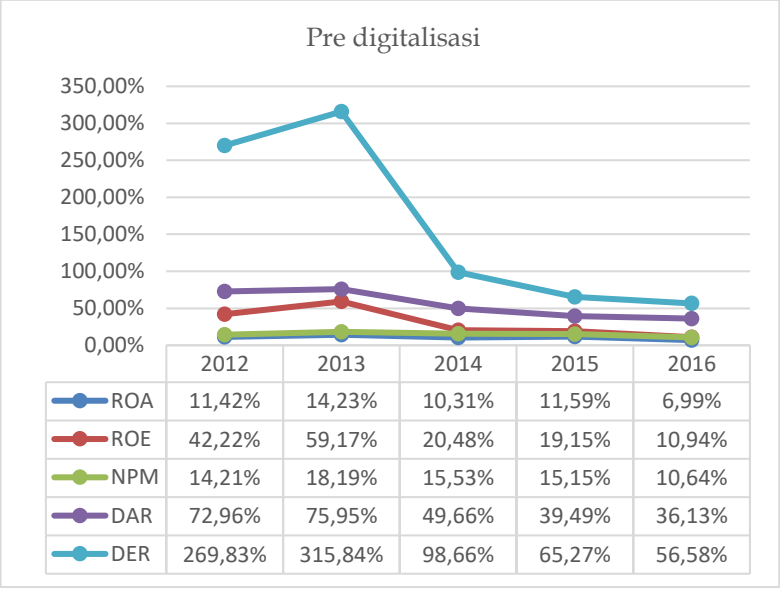
One of the transportation companies that has successfully adapted to new trends in the sector is PT Blue Bird Tbk. Blue Bird is one of the largest transportation companies in Indonesia, founded in 1972. As a land transportation service provider, Blue Bird has built a strong reputation in the industry through a variety of high-quality services. In addition, the company continues to innovate by offering digital-based services through an application that allows customers to order taxis online and track their trips in real-time. According to PT Blue Bird's annual report, in 2016 the company launched an application called MyBluebird, which is accessible in almost all regions of Indonesia.

The adoption of digital technologies such as ride-hailing has brought several changes to the business model and operations of transportation companies like PT Blue Bird Tbk. Prior to the emergence of app-based

technology, the company's business model relied more heavily on traditional approaches, where consumers ordered services by phone or directly at certain locations. However, after the implementation of online applications, the business model shifted to become more platform-centric, allowing customers to order services via mobile apps that offer real-time access and greater convenience in the booking process.

The implementation of ride-hailing applications at PT Blue Bird Tbk has also had a complex impact on the company's financial performance, bringing both benefits and challenges. On the positive side, the use of applications has enabled the company to significantly increase its revenue. Through this digital platform, PT Blue Bird can reach more customers, provide easier access to services, and streamline the booking process. However, on the negative side, the initial investment required for the development and maintenance of the application incurs substantial costs, which can affect the company's cost structure in the short term.

It is essential for management to understand how the company's financial performance has changed before and after the implementation of the application. The following are the financial ratios of ROA, ROE, NPM, DAR, and DER before and after the adoption of digital technology:



	2012	2013	2014	2015	2016
ROA	11,42%	14,23%	10,31%	11,59%	6,99%
ROE	42,22%	59,17%	20,48%	19,15%	10,94%
NPM	14,21%	18,19%	15,53%	15,15%	10,64%
DAR	72,96%	75,95%	49,66%	39,49%	36,13%
DER	269,83%	315,84%	98,66%	65,27%	56,58%

Figure 1. Financial Performance Before Digitalization
Source: Annual report of PT Blue Bird Tbk

Based on Figure 1.1, prior to digitalization, profitability ratios such as ROA, ROE, and NPM showed strong performance, with ROA reaching up to 14.23%, ROE up to 59.17%, and NPM up to 18.19%. These figures reflect the company's ability to generate significant profits from its assets and equity. However, in terms of solvency, the high DAR and DER ratios (up to 72.96% and 315.84%, respectively) indicate a heavy reliance on debt to finance operations, which could increase financial risk in the long term.

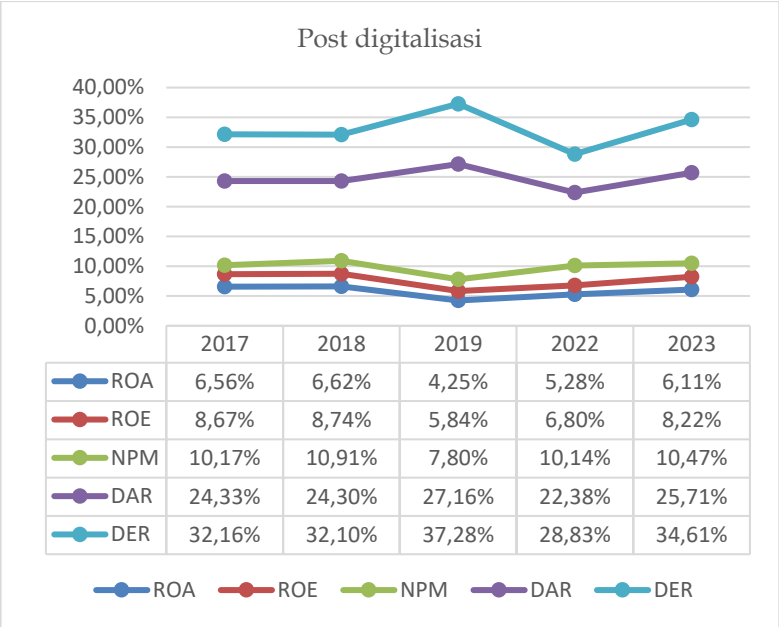


Figure 2. Financial Performance After Digitalization
Source: Annual report of PT Blue Bird Tbk

Based on Figure 1.2, although the solvency ratios improved—evidenced by the decrease in DAR and DER—the profitability ratios declined. ROA, ROE, and NPM dropped to 6.62%, 8.74%, and 10.91%, respectively. This decline likely reflects an adjustment period during the digital transition, where high initial investments and operational changes reduced short-term profit efficiency. Nevertheless, the improvement in solvency suggests a healthier financial foundation, which could support more stable profitability in the long run.

The measurement of financial performance in this study employs the ratios of Return on Assets (ROA), Net Profit Margin (NPM), Return on Equity (ROE), Debt to Asset Ratio (DAR), and Debt to Equity Ratio (DER). ROA helps assess how effectively assets contribute to generating net income (Wijaya, 2019), thus serving as an indicator of the impact of technology on productivity. NPM illustrates the company's effectiveness in managing revenue to achieve profit (Nabela et al., 2023) which may change due to new cost structures introduced by digital applications. ROE is used to measure the return earned on shareholders' investments in the company (Firmansyah, 2019). indicating how effective digital strategies are in increasing returns for capital owners.

For solvency ratios, DAR reflects the proportion of the company's assets financed through debt (Ndraha & Lestiowati, 2024), which can reveal the effect of digitalization on the company's funding structure and financial stability. DER measures how the company finances its operations (Siringoringo, 2020), indicating whether technology investments influence financial risk or increase reliance on debt. By utilizing these five ratios, this study aims to provide a comprehensive overview of how digital transformation affects the financial performance of transportation companies in Indonesia.

Based on this background, the study aims to analyze the comparison of PT Blue Bird Tbk's financial performance before and after the adoption of digital technology, as well as to identify the impact of digitalization on the company's

profitability and solvency using Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin (NPM), Debt to Asset Ratio (DAR), and Debt to Equity Ratio (DER) as the key performance indicators.

LITERATURE REVIEW

Diffusion of Innovation Theory

The diffusion of innovation theory first emerged from Trade's ideas in the early 20th century. These ideas were later developed by Everett Rogers in his book Diffusion of Innovation (1961) (Hidayat, 2023). According Mailin et al (2019), Rogers discussed three key concepts: innovation, diffusion, and adoption. Innovation refers to an idea, practice, or object that is perceived as new by an individual. Diffusion is the process through which the innovation spreads via specific communication channels over time among members of a social system. Adoption occurs when an individual fully implements the innovation as the most optimal choice in their practices.

This theory has become a foundation for understanding consumer behaviour, technology adoption, and the marketing strategies employed by organizations (Weil, 2018). In the context of transportation companies, the adoption of digital technologies such as ride-hailing applications can be seen as a form of technological innovation aimed at improving operational efficiency, expanding market reach, and enhancing customer experience.

Technological innovation is one of the core concepts in the diffusion of innovation theory. It refers to the process by which an organization integrates and applies new technologies into its operations and business strategies (Haryanto et al., 2023). Technological innovation includes the introduction and application of new information systems, as well as the use of hardware and software that can improve efficiency, enhance customer experience, or create new business opportunities (Fauzi & Mandala, 2019). In this study, the diffusion of innovation theory is used as a framework to understand how PT Blue Bird Tbk utilizes the MyBluebird application as a form of technological innovation expected to become a competitive advantage that can improve the company's financial performance.

Signalling Theory

Signalling theory is a strategy employed by management to convey signals to investors regarding their perspective on the company's business prospects (Brigham & Houston, 2014) , According (Rochman & Andayani, 2023). These signals may take the form of information indicating that a company is performing better than its competitors (Ayuning Tyas & Purwanti, 2020).

According to signalling theory, technological innovation can serve as a positive signal aimed at enhancing operational efficiency and the company’s competitiveness. However, such signals must be supported by concrete evidence, such as improvements in financial performance. A company’s financial performance can be evaluated through financial ratios (Purwani & Kadarningsih, 2020). In this study, improvements in Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM) serve as validation that technological investments have yielded profitable results. Additionally, the

stability of the Debt to Assets Ratio (DAR) and Debt to Equity Ratio (DER) demonstrates the company's ability to maintain solvency despite significant investments in digitalization. Therefore, the proper implementation of technology can act as a positive signal that drives better financial performance, ultimately increasing the company's attractiveness to investors and other stakeholders.

Financial Performance

Financial performance reflects a company's achievements over a specific period and serves as an indicator of its overall health (Hartati et al., 2022). Meanwhile (Mahsun, 2009), financial performance can be interpreted as a representation of opportunities, expansion, and the potential for profitable growth. In general, financial performance refers to the results achieved that indicate a company's financial health during a certain period, reflecting the efficiency in resource management and the company's prospects.

The importance of financial performance lies in its function as a tool to measure the success of management strategies. According to Munawir (2006), As cited in Faisah et al. (2017) he significance of measuring financial performance includes: (1) Assessing liquidity ratios, which indicate the company's ability to meet its short-term financial obligations; (2) Measuring solvency, or the company's ability to settle all short- and long-term liabilities in the event of liquidation; (3) Determining profitability levels, or the company's capacity to generate income over a specific period; and (4) Evaluating the company's stability, or its ability to operate sustainably by considering its capacity to pay interest expenses on its debts.

Financial Ratio

The measurement of a company's financial performance can be evaluated using financial statements, particularly through financial statement analysis (Yanti, 2020). The goal of financial statement analysis is to provide deeper insights for users of the statements, thereby improving the quality of economic decisions made (Nuvitasari et al., 2019). Financial ratio analysis is a method commonly used to assess financial statements. The financial ratios typically applied include liquidity ratios, solvency ratios, profitability ratios, and activity ratios. In this study, the researcher uses profitability ratios and solvency ratios to measure financial performance.

Profitability ratios reflect the company's ability to generate profit. The amount of profit reflects the financial condition and effective management (Sutrisno, 2015). Several indicators used to measure the profitability ratio is Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM). Return On Assets (ROA) is a ratio that assesses how well a company can generate profit by optimizing its total assets (Kasmir, 2015). ROA indicates the effectiveness of a company in managing its resources to generate profit. Return on Equity (ROE) is a ratio used to assess how effectively a company generates net profit after tax from its equity. ROE reflects the effectiveness of a company in managing the capital provided by shareholders to generate profit. The NPM ratio is a ratio that compares net profit after tax with total sales

(Kasmir, 2015). Net Profit Margin assesses the amount of net profit earned from each rupiah of sales.

Solvency ratio is used to measures the extent to which a company's assets are financed by debt. In other words, this ratio indicates how much debt the company has in relation to its total assets. Several indicators used to measure the profitability ratio is Debt to Asset Ratio (DAR) and Debt to Equity Ratio (DER). The Debt to Asset Ratio (DAR) is a financial metric used to assess the proportion of a company's total debt relative to its total assets (Kasmir, 2015). It indicates the extent to which a company's assets are financed by debt and reflects how debt influences asset management. On the other hand, the Debt-to-Equity Ratio (DER) measures the relationship between total liabilities and shareholders' equity within a company's capital structure. This ratio illustrates the extent to which a company relies on debt versus equity to finance its operations.

Digital technology

Digital technology refers to systems that operate automatically with the support of computers, thereby reducing reliance on human labour (Juman, 2020). In the business world, digital technology encompasses the development of new business models, processes, software, and systems that enhance a company's profitability, competitiveness, and efficiency (Berutu et al., 2024).

The implementation of digital technology in business has opened new opportunities to improve operational efficiency and service quality. The adoption of digital technology offers various benefits, such as reducing operational costs, increasing flexibility, minimizing errors, accelerating response times, and optimizing workforce efficiency (Armiani & Nursansiwi, 2023). Today, digital technology plays a crucial role across various sectors, including industry, commerce, healthcare, education, transportation, and government ((Herlambang & Fathoni, 2023).

The transportation sector is one industry that has experienced significant impacts from digitalization. The use of technologies such as GPS-based applications, fleet management systems, and ride-hailing platforms has helped enhance operational efficiency and customer satisfaction. Moreover, the operational efficiencies gained from digitalization help companies reduce costs, including manual labour expenses, production time, and other resources, ultimately contributing to increased profitability. However, the implementation of digital technology also requires substantial investment in hardware, software, and network infrastructure. Additionally, the costs associated with maintenance and technology upgrades can pose an extra burden for companies (Ningsih, 2024). Therefore, these aspects must be carefully considered when implementing digital technology.

Hypothesis

The hypotheses used in this study are as follows:

- **H_1 =** There is a significant difference in ROA before and after the adoption of digital technology.
- **H_2 =** There is a significant difference in ROE before and after the adoption of

digital technology

H_3 = There is a significant difference in NPM before and after the adoption of digital technology

H_4 = There is a significant difference in DAR before and after the adoption of digital technology

H_5 = There is a significant difference in DER before and after the adoption of digital technology

Conceptual Framework

This conceptual framework compares financial performance, measured by ROA, ROE, NPM, DAR, and DER, before and after the adoption of digital technology using an event study approach.

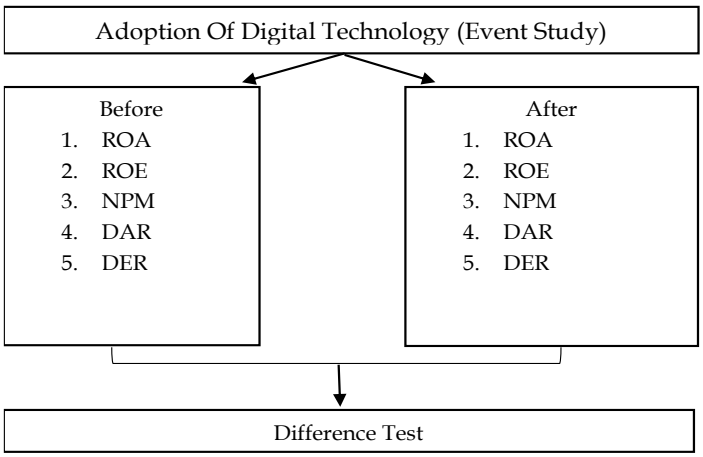


Figure 3. Conceptual Framework

METHODOLOGY

This study uses a quantitative comparative with an event study method to analyze the financial performance of PT Blue Bird Tbk before and after the adoption of digital technology. The quantitative approach refers to testing theories by measuring research variables, which are then analyzed using statistical analysis (Ariani & Prastiwi, 2020). The analysis compares two periods: 2012–2016 (pre-digitalization) and 2017–2019 and 2022–2023 (post-digitalization). The data was obtained through the documentation method, which is a method used by researchers to collect data and information from documents (archives) related to the subject of the study (Putikadea, 2010). Secondary data were obtained from the company's audited annual reports. Five financial ratios ROA, ROE, NPM, DAR, and DER were used to assess profitability and solvency. The data were analyzed using SPSS, starting with a Shapiro-Wilk test to check normality. Based on the results, either a Paired Sample T-Test or Wilcoxon Signed Rank Test was applied to determine whether significant differences occurred between the two periods.

RESEARCH RESULT

Descriptive Statistical Analysis

This analysis aims to provide an overview of all the variables to be examined in this study. The following are the results of the descriptive statistical analysis processed using SPSS version 21.0:

Table 1. The Result of Descriptive Statistical Analysis

	n	Min	Max	Mean	Std. Deviation
Pre Adoption					
ROA	5	6,99	14,23	10,9063	2,62107
ROE	5	10,94	59,17	30,3933	19,81912
NPM	5	10,64	18,19	14,7448	2,72950
DAR	5	36,13	75,95	54,8403	18,61701
DER	5	56,58	315,84	161,2350	122,24332
Post Adaption					
ROA	5	4,25	6,62	5,7638	1,00045
ROE	5	5,84	8,74	7,6548	1,28131
NPM	5	7,80	10,91	9,8975	1,21414
DAR	5	22,38	27,16	24,7745	1,78325
DER	5	28,83	37,28	32,9935	3,15606
Valid N (listwise)	5				

Based on Table 1, the results of the descriptive statistical analysis reveal the financial performance of PT Blue Bird before and after the adoption of digital technology. After the adoption of digital technology (2017–2019, 2022–2023), all three profitability ratios declined. ROA decreased to a range of 4.25 to 6.62, with an average of 5.76. ROE dropped to a range of 5.84 to 8.74, with an average of 7.65, and NPM fell to a range of 7.80 to 10.91, with an average of 9.90. This decline may be attributed to several factors, such as increased operational costs or more intense market competition following digital transformation.

On the other hand, financial stability improved after digitalization. The Debt to Asset Ratio (DAR), which previously ranged from 36.13 to 75.95, dropped to 22.38 to 27.16, indicating a more secure and stable financial position. The Debt-to-Equity Ratio (DER) also showed a significant decrease, from a range of 56.58 to 315.84 with an average of 161.24, to a range of 28.83 to 37.28 with an average of 32.99. This suggests a healthier capital structure. Overall, following digitalization, while profitability declined, financial stability improved due to better debt management.

The Normality Test

This normality test was conducted to ensure that the data follows a normal distribution. The data is considered normally distributed if the significance value is greater than 0.05. The following are the results of the normality test using the Shapiro-Wilk method with SPSS 2021:"

Table 2. The Result of Normality Test

Variable	Adoption of Technology	n	Asymp. Sig (2-tailed)	Sig.	Description
ROA	After	5	0.771	p>0.05	Normal
	Before	5	0.329	p>0.05	Normal
ROE	After	5	0.415	p>0.05	Normal
	Before	5	0.242	p>0.05	Normal
NPM	After	5	0.78	p>0.05	Normal
	Before	5	0.058	p>0.05	Normal
DAR	After	5	0.231	p>0.05	Normal
	Before	5	0.892	p>0.05	Normal
DER	After	5	0.121	p>0.05	Normal
	Before	5	0.889	p>0.05	Normal

Based on the normality test results, the p-values for all variables ROA, ROE, NPM, DAR, and DER are greater than 0.05. Therefore, it can be concluded that all the data are normally distributed. Consequently, the subsequent analysis can be conducted using parametric statistical methods, specifically the Paired Sample t-Test.

The Hypothesis Testing

The hypothesis testing in this study was conducted using the Paired Sample t-Test method. This test is used to compare two related or paired samples. The following are the results of the paired sample t-test for each variable using SPSS 2021:

Table 3. The Results of Paired Sample t-Test On ROA

		t	Sig (2-tailed)	Description
Pair 1	ROA before the adoption of Technology- ROA after the adoption of Technology	4.463	0.011	Significance

Based on Table 3, the results of the Paired Sample t-Test on the Return on Assets (ROA) ratio show a t-value of 4.463 with a significance value (p-value) of 0.011. Since the p-value of 0.011 is less than the significance level of 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This indicates that there is a significant difference in ROA before and after the adoption of digital technology.

Table 4. The Result of Paired Sample t-Test On ROE

		t	Sig (2-tailed)	Description
Pair 2	ROE before the adoption of Technology - ROE after the adoption of Technology	2.663	0.056	No significance

Based on Table 4, the results of the Paired Sample t-Test on the Return on Equity (ROE) ratio show a t-value of 2.663 with a significance value (p-value) of 0.056, which is greater than the significance level of 0.05. Therefore, the null hypothesis (H_0) is accepted and the alternative hypothesis (H_1) is rejected, indicating that there is no significant difference in ROE before and after the adoption of digital technology.

Table 5. The Result of Paired Sample t-Test On NPM

		t	Sig (2-tailed)	Description
Pair 3	NPM before the adoption of Technology – NPM after the adoption of Technology	3.572	0.023	Significance

Based on Table 5, the results of the Paired Sample t-Test on the Net Profit Margin (NPM) ratio show a t-value of 3.572 with a significance value (p-value) of 0.023. Since the p-value of 0.023 is less than the significance threshold of 0.05, the null hypothesis (H_0) is rejected, indicating that there is a significant difference in NPM before and after digitalization.

Table 6. The Result of Paired Sample t-Test On DAR

		t	Sig (2-tailed)	Description
Pair 4	DAR before the adoption of Technology - DAR after the adoption of Technology	3.567	0.023	Significance

Based on Table 6, the results of the Paired Sample t-Test on the Debt to Asset Ratio (DAR) show a t-value of 3.567 with a significance value (p-value) of 0.023. Since the p-value of 0.023 is less than the significance threshold of 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted, indicating that there is a significant difference in DAR before and after digitalization.

Table 7. The Result of Paired Sample t-Test On DER

		t	Sig (2-tailed)	Description
Pair 5	DER before the adoption of Technology – DER after the adoption of Technology	2.335	0.08	No significance

Based on Table 7, the results of the Paired Sample t-Test on the Debt-to-Equity ratio (DER) show a t-value of 2.335 with a significance value (p-value) of 0.08. Since the p-value of 0.08 is greater than the significance threshold of 0.05, the alternative hypothesis (H_1) is rejected, indicating that there is no significant difference in DER before and after digitalization

In this section, you should describe each step taken to complete your research. You should not include too many descriptive statistical results here; on the other hand, it should be summarized in a more readable table or graph. You should never forget the numbers for each table and chart presented in your paper.

DISCUSSION

Differences in ROA Before and After the Adoption of Digital Technology

The results of the paired sample t-test on the ROA variable show a t-value of 4.463 with a significance level of 0.011, which is less than 0.05. This indicates a significant difference in ROA values, thus the alternative hypothesis (H_1) is accepted.

These results suggest that the adoption of digital technology has had a significant impact on ROA. After the implementation of digital technology, the ROA value declined. Despite this decrease, the average ROA remains at 5.76%. According to Agustin et al. (2023), ROA is generally considered healthy if it exceeds 5%, indicating that ROA after digital technology adoption still falls within the healthy category. This implies that the company remains capable of optimizing its assets to generate profits.

The decline in ROA occurred due to an increase in total assets following the adoption of digital technology. Based on PT Blue Bird Tbk's financial reports, there was an average increase in total assets of 16% after adopting digital technology. This indicates substantial investment in technology infrastructure, fleet expansion, and other operational support facilities, which are considered company assets. In the short term, this asset growth increases operational costs. However, in the long term, such investments are expected to enhance profits by improving efficiency, reducing operational costs, and boosting the company's competitiveness.

These findings are consistent with the study by Siagian & Manzilati (2022), which demonstrated a significant difference in ROA before and after the implementation of e-commerce, primarily due to the high cost of developing mobile banking infrastructure. Similiarly Tanjung & Novitasari (2022), found a

significant difference in ROA before and after the implementation of branchless banking.

This research aligns with the diffusion of innovation theory, which explains that technology adoption can improve operational efficiency, expand market reach, and enhance customer experience—all of which ultimately contribute to better financial performance. However, implementing technology requires high costs, which can negatively impact company profitability in the short term (Yogaswari & Diantini, 2024). During digital technology implementation, companies incur additional costs such as for technological infrastructure, fleet upgrades, and other supporting operational facilities, which are treated as assets. These costs are considered investments aimed at improving long-term efficiency and profitability.

Differences in ROE Before and After the Adoption of Digital Technology

The results of the paired sample t-test on the ROE variable show a t-value of 2.663 with a significance level greater than 0.05, specifically 0.056. This indicates that there is no significant difference in ROE values before and after the adoption of digital technology; thus, Hypothesis 2, which states that there is a significant difference in ROE before and after digital technology adoption, is rejected.

This result suggests that digitalization has not had a substantial impact on the company's ROE. This may be due to the high initial investment in technology, as indicated by the increase in equity following the adoption of digital technology. Furthermore, technological investments often require time before yielding returns, so the generated profits may not yet be sufficient to offset the increase in capital used in the short term (Sutarti et al., 2019).

This finding aligns with the studies by Kamaluddin & Sukmalaresa (2021) and Juliana (2019), which found that the implementation of e-commerce had not yet made a positive contribution to companies' ROE ratios. The absence of a significant difference may be attributed to a reduction in investments or capital that would otherwise generate returns.

This result is not consistent with the diffusion of innovation theory, which posits that the adoption of digital technologies, such as automation systems and business process digitalization can enhance operational efficiency, expand market reach, and boost productivity. These improvements have the potential to increase net income, which in turn could raise ROE, as the company generates higher returns for each unit of capital invested by shareholders. However, this finding supports the statement by (Sutarti et al., 2019) which notes that adopting technology requires substantial investment and time before it can positively impact a company's financial performance. Therefore, although digital technology is expected to improve efficiency and profitability, during the early stages of implementation, companies may still face financial challenges that hinder immediate improvements in performance.

Differences in NPM Before and After the Adoption of Digital Technology

The results of the paired sample t-test on the NPM variable show a t-value of 3.572 with a significance level below 0.05, specifically 0.023. This indicates

that there is a significant difference in NPM values before and after the adoption of digital technology; therefore, Hypothesis 3, which states that there is a significant difference in NPM before and after digital technology adoption, is accepted.

This result indicates that the implementation of digital technology has had a significant impact on NPM. Numerically, there was a decrease in NPM after digitalization. However, the average NPM remains at 10%, which is generally considered healthy and indicates efficient net profit relative to the company's operating revenue.

The decline in NPM can be attributed to an increase in operating expenses, which are part of the company's investments to support future growth and competitiveness. This is supported by a reported 37% decrease in average net profit and a 51% increase in operating expenses. According to Gika & Dkk (2023), service quality and pricing are critical factors in retaining customers and increasing market share. This compels companies to offer competitive rates, promotions, and incentives for drivers, which increases operational costs and compresses profit margins.

The decrease in NPM does not necessarily indicate a failure in adopting technological innovations, especially considering that the NPM is still within a healthy range. The decline should be seen as part of the adaptation and transformation process, which requires time to deliver optimal financial performance (Sutarti et al., 2019).

This finding aligns with the studies by Kamaluddin & Sukmalaresa (2021) and Hidayanti et al. (2021), which also reported significant differences in NPM ratios before and after the adoption of digital technology. These differences are due to a decline in the company's ability to generate operating income after digitalization. Additionally, during the transition period of technology adoption, operational efficiency may not yet be optimal, thus affecting profitability in the short term.

This research is consistent with the diffusion of innovation theory, which states that the adoption of digital technology can improve operational efficiency and reduce costs, ultimately increasing net profit in the long run. Although there is a short-term decline in NPM due to rising operational expenses such as employee training, digital system maintenance, and other implementation-related costs, these expenditures are crucial investments in improving service quality and system efficiency both of which support revenue growth and more stable profitability in the future.

Differences in DAR Before and After the Adoption of Digital Technology

The results of the paired sample t-test on the DAR variable show a t-value of 3.567 with a significance level below 0.05, specifically 0.023. This indicates that there is a significant difference in DAR values before and after the adoption of digital technology, thus Hypothesis 4, which states that there is a significant difference in DAR before and after the adoption of digital technology, is accepted.

The acceptance of Hypothesis 4 in this test shows that digitalization has a real impact on the DAR ratio. This means that the proportion of debt financing relative to total assets has decreased, indicating that the company has reduced its reliance on debt in its capital structure. Following the adoption of digital technology, the company experienced a 44% reduction in debt. This suggests that the company preferred to finance digitalization—as an asset—using equity or retained earnings rather than incurring new debt. This can be a strategic move to reduce financial risk, as the greater the debt, the higher the potential risk faced by the company (Nurcahayani & Daljono, 2014). With less debt, the company is not burdened by high interest obligations. Additionally, the increase in total assets can also lower the DAR value.

This study is consistent with the findings of Idfilandu & Saripudin (2021), which showed a significant difference in DAR before and after the implementation of fintech, and Akbar et al. (2021) which also reported a significant difference in the DAR ratio before and after the adoption of e-commerce.

These findings align with Signalling Theory, which states that company decisions can send signals to stakeholders about future business prospects. In this context, the decrease in the Debt to Asset Ratio (DAR) after digitalization can be interpreted as a positive signal that the company has managed its capital structure more prudently and reduced its dependence on debt. This positive signal reflects sound financial management, increased efficiency, and a lower potential risk of bankruptcy. As a result, investors may interpret this as an indication that the company has more stable and sustainable prospects, making them more likely to invest or maintain their investments, as they perceive the company to be financially strong and reliable in delivering future returns.

Differences in DER Before and After the Adoption of Digital Technology

The results of the paired sample t-test on the DER variable show a t-value of 2.335 with a significance level greater than 0.05, namely 0.08. This indicates that there is no significant difference in DER values before and after the adoption of digital technology. Therefore, Hypothesis 5, which states that there is a significant difference in DER before and after the adoption of digital technology, is rejected.

The findings suggest that there is no significant change in the Debt to Equity Ratio (DER) before and after digital adoption, indicating that the company maintained a balanced proportion between debt and equity in its capital structure. Based on the data, the company experienced a debt reduction of approximately 40%, which coincided with an equity increase of more than 50%. Although there was a reduction in debt after digitalization, the corresponding increase in equity offset the impact, resulting in no substantial shift in the debt-to-equity proportion. Thus, even though digitalization affected the company's financial structure, the composition of debt and equity remained relatively stable.

This result is consistent with the study by Suryani & Nasri (2020), which also found no significant difference in the DER ratio before and after the

implementation of e-commerce. This occurred because the company was unable to lower its solvency ratio despite adopting e-commerce.

The results concerning the Debt to Equity Ratio (DER) do not align with signaling theory, which posits that the adoption of digital technology can serve as a positive signal to investors and stakeholders regarding a company's risk management and financial health. In this study, although there was a decrease in DER, indicating some changes in the company's financing structure, the change was not statistically significant. This suggests that while there were adjustments in the proportion of debt and equity, the magnitude of these changes was too small to provide a clear signal to investors about the positive impact of digital technology adoption.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study concludes that the adoption of digital technology at PT Blue Bird Tbk has had varying impacts on different financial performance indicators:

1. ROA significantly decreased after digitalization due to an increase in total assets, reflecting substantial investment in technology. However, it still indicates the potential for improved efficiency in the long term.
2. ROE showed no significant change, as the benefits of digitalization have not yet generated sufficient profits in the short term.
3. NPM declined significantly, although it remains within a healthy range. The decrease was caused by increased operating expenses related to digital investment.
4. DAR showed a significant decrease, indicating reduced reliance on debt and a healthier capital structure.

DER did not change significantly, reflecting a stable balance between debt and equity financing despite digitalization.

Recomendation

1. For future researchers, it is recommended to include additional financial ratios, extend the observation period, and explore companies in different sectors to gain a more comprehensive understanding of digitalization's financial impact.
2. For the company, it is advised to regularly evaluate digitalization policies, especially in financial and operational efficiency aspects, monitor profitability ratios more closely, and optimize the management of debt and equity to maintain a healthy capital structure and support sustainable growth.

ADVANCED RESEARCH

This study is limited to the use of profitability ratios (ROA, ROE, NPM) and solvency ratios (DER, DAR) to analyze the financial performance of PT Blue Bird Tbk. The selection of these ratios is based on the objective of assessing the impact of digital technology adoption on the company's efficiency, profitability, and financial risk, considering the high costs associated with

digitalization. Although other ratios could be used, this research focuses on those most relevant to the given context..

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